Consumer Awareness of Nutritional Facts and Health Claim Food Labels: With Reference to Marketing of Food Products

Synopsis

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Submitted by

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SECTION: I

Introduction

Health claims on food labels act as health message and have a role in communicating and educating the consumer about diet-related issues **(Singer et al. 2006).**Food labels gives consumers an overall view of any packaged food product therefore it helps an individual for maintaining their daily requirement of healthy and nutritious diet. Food label information is very crucial for consumers to know what they are consuming and nowadays a healthy diet is precursor to avoid any type of non-communicable disease. Therefore, it could be stated that awareness and understanding could be crucial part of consumption process **(Singla, 2010 p.89)**

World health report 2002 states that most of the non-communicable diseases such as high blood pressure, high cholesterol, obesity etc. are majorly related with our diet and physical activity **(World Health Report 2002).**Recently consumers are growing interest in health related aspects so health claims or health related messages should not mislead people about nutritional benefits on food products **(WHO, Global strategy on Diet, Physical Activity and Health, 2004).** It also stated that the label should be clear and precise so that it does not hinder the food choices of consumers rather increase awareness among consumers.

To enhance consumer awareness ,**FSSAI** has drafted a new Food Safety and Standards for **Labelling and Display regulations 2019** which will add some new labelling rules to Food Safety and Standards (Packaging and Labelling) ,2011 for consumers to make healthy food choices .In the **press release on 25 June 2019** it was drafted that nutritional information including calories, Saturated fats, added sugar, sodium per serve and RDA(recommended dietary allowance) would be displayed on front packaging of food product**(www.fssai.gov.in)**. Another recommendation of committee was that Red color coding is mandatory on the front packaging for foods having High salt, High sugar, and High fat contents on the packaging and is to be implemented within three years and each food product should have barcode/GTIN (Global Trade Identification number) for health conscious consumers to provide additional nutrition information **(www.fssai.gov.in).**

Consumer awareness is very important factor for the manufacturers/marketers to rightly label the food products, improve marketing strategies and to follow all the guidelines issued by FSSAI, with the help

of these protocols, manufacturers cannot misguide consumers with all these fake health claiming labels and using words like natural or high fiber etc. on wrongly labelled food product. Recently we are seeing a huge shift of consumers to correctly choose right food products for maintaining healthy lifestyle and one of the factor for this shift may be the pandemic which we are facing, as healthy diet is the key to avoid many unwanted diseases such as BP, Obesity etc.

In National Family Health Survey (NFHS-4), it was stated that 21% of women and 19% of men are overweight which has increased from previous survey and a recent World Bank study estimates that food borne diseases in India cost approx. $28 billion (Rs.1,78,100 crore)every year(**Financial Express, 2019).** By this study it is clear that, consumers become negligent while purchasing food products hence it becomes very important for individuals to have adequate knowledge about nutritional components in food.

Correctly identifying the nutritional information/health claims on food label is very crucial nowadays because companies try to market their food products to tempt consumers. Basic understanding of nutritional facts such as (saturated and trans-fat, amount of sodium in food product (measured in mg), level of cholesterol, amount of vitamins, minerals etc., amount of sugar, dietary fiber etc.) each and every individual should possess to attain a healthy body.

Healthful eating is the cornerstone to prevent chronic diet-related diseases **(Jebb, 2007).** This statement clearly identifies that rightful eating is very crucial in maintaining health which prevents us from diseases. As stated above FSSAI is working in improving the food labels so that consumers can understand the labels clearly which will help them in healthful eating.

The label could concretely help us in protecting and improving our health, if our choices are supported by some basic knowledge of wholesome nutrition, based on balanced and varied diet and in wider perspective this may translate into reduction of obesity and chronic disease and significantly help public health in terms of costs for individual and medical systems **(Viola et al., 2016)**

Consumers found nutritional labels fairly difficult to comprehend **(Singla, 2010).** This is the may be one of the reasons why consumers does not bother to read the labels. Nutrition facts on labels should be clear and precise and include all important information that will increase consumer awareness on food labels. Indian government has not made nutritional labelling mandatory for every product **(Singla 2010).**

SECTION: II

Review of Literature

The literature on consumer awareness and intrusiveness on Nutritional knowledge and Health claims on food labels was studied to get a broader concept idea and a bit more relevant to support the present study. A synthesized matrix of literature of review is represented in the below given Table 1.The literature is broadly classified in two categories

1. PAPER CONTENT

2. RESEARCH TYPE

1.1 Nutritional Awareness

This category of literature of review is all about awareness on health claim food labels and consumer responses towards purchasing of food product according to their nutritional knowledge therefore the first sub category of awareness is General Awareness i.e. common knowledge about macros and micros in the food that majority of individuals are aware of. And based on this fact, in a study is was found that Health claims on food label are seen by consumers as useful and help them to choose right product, to maintain a healthy lifestyle **(Williams, 2005)** but due to lack of proper knowledge consumers don't like long and complex, scientifically worded claims on food labels and prefer easy and understandable split claims.

In another study it was revealed that Nutrition labeling information, such as nutrient and health containing claims and percentage of daily value that we consume can be used for choosing foods on the basis of nutrients present in the food and another perspective of this study was that as we have a common/general understanding towards labels therefore dieticians can help consumers to choose right food by calculating all type of food labelling(health claims, nutrient (macro and micro nutrients),sugar, dietary facts etc.) promoting healthy diet (**Legault et al. ,2004).**

An Experimental study was conducted to evaluate Front-of-Package (FOP) nutrition and health claim labels awareness among consumers food choices for maintaining a healthy lifestyle and it was concluded that FOP labels help consumers to choose a healthy food option **(Hagmann and Seigrist, 2020).**Likewise an another experimental study was performed which contradicts to previous mentioned study and states about consumer food choices in response to front-of pack (FOP) nutritional labelling

scenario and concludes that that FOPLs does not influence consumer choices to that extent but nutri-score works best for getting an insight on nutritional information on packaging **(Vandevjvere et al. , 2020).**

Second sub category of awareness is Brand specific awareness i.e. most of the individuals trust certain brands and find them healthy therefore trust all health claims on food labels and brands also roots for health benefits or claims about their product containing all nutritional advantage that an individual wants(For ex if a person wants to buy packaged juice, there are various manufactures in market which presents several health claims but consumer will trust the health claim label on the brand for which they are loyal).

A study using an analytical approach showing effects of nutritional and health claim labelling on brand choice behaviour **(Baltas, 2001)** revealed about positive relationship between nutrition information and cereal brands. Another descriptive study was performed to study the health conscious behaviour and brand loyalty of consumers towards a brand of green tea "Oishi Green tea" hence it was concluded that apart from health claims many more factors determine the market share of this particular green tea**(Oke et al. 2016).**

A case study on ready to eat foods i.e. oats brands was performed to understand consumer trust and how the consumer relate their knowledge about health claims and their choice of brand which they trust, in this study the author found out that 32.7% of individuals consume Quaker Oats and 22.7% of consumers prefer Saffolow **(M Vasan,2015).**As oats are healthy substitute in breakfast and choice of many individuals maintaining a healthy lifestyle, so by this study it is clear that brand specific awareness is also very important factor in judging consumer awareness on nutrition and health claim food labels.

The third sub-category of awareness is self -selective awareness on health claim food labels, that is personal needs of individual will define their awareness on food label which means if an individual is diabetic then he/she will emphasize on sugar content on food label. An experimental study was performed to test that amongst sugar, saturated fat, salt etc. which is the most preferred requirement on the food label that consumers prefer to see and the results show that sugar percentage was the important nutrient that an individual see on the food label **(Anabtawi et al., 2020).**

Another study indicates that saturated fat and salt had a greater impact on decisions than sugar and total fat **(Scarborough et al., 2015).** The studies stated above clearly identifies that awareness on food label is somewhat related to the personal choice and needs of individual.

In a study it is was noted that Nutrition and health claims create 'magic bullet' or 'halo, effects that lead consumers to believe that a food claim is healthier than it actually is **(Orquin and Scholderer ,2015).** Mixed results were obtained i.e. some claims mislead people but claims following all the guidelines of labelling agency were helpful for individuals selecting the right food product.

1.1.1 External Factors affecting Nutritional awareness

1.1.1.1 Food labelling guidelines/policies

In a descriptive study it was noted that for maximum effectiveness and increasing health consciousness of individuals the labelling of all the products is needed **(Hagmann and Seigrist, 2020)** hence it becomes very important for food regulation authorities to label all the products correctly to ease consumer understanding level. In the above study it was noted that from various parameters of labelling, Nutri-Score on the food product was found as the most accurate choice for giving nutrition information **(Hagmann and Seigrist, 2020).**

Nutrition labelling can drive healthy food choices and intensive product reformulation **(Brown et al., 2020).**By this study it is clear that the regulations by food agencies is very helpful in making food choices by individuals**.** Food labelling has become a part of food systems infrastructure and yet there are challenges with governing this sector (**Brown et al., 2020).** Tll(refers to total of free sugar content) on food packages helped consumers despite with a lack of knowledge to choose healthier food product**(Anabtawi et al.,2020).**Better targeted communication efforts are thus needed to make health claims effective in supporting informed food choices**(Hung and Verbeke,2019).**

1.1.1.2 Health claims (Manufacture's role)

This category deals with the health claim packaging that tends to increase awareness among individuals and motivates them to choose right food product. In a study an author about health and nutrition claims made on packaging create "heath halos" that make foods appear healthier than they are, thereby leading to higher consumption yet lower perceived calorie intake**(Chandon,2012).**In an experimental study the effects on nutrition claims made(e.g., 99% fat free ,"low in calorie")on product package ,product

nutrition value levels, and enduring motivation to process nutrition information**(Keller et al. ,1997).**Likewise another study featured the impact of nationally instituted nutrition labelling policy on fast food nutritional content (**Joshua Reed,2020).**In this study it is clear that consumers prefer nutritional labelling on fast food products and this new trend increase nutritional labelling among individuals.

Another study focuses on salt reduction in diets of individuals by increasing awareness among them creating a slowdown in the rate of cardiovascular disease and it depends on the salt intake which spike the sodium levels in our body. Moreover, to speed up the salt reduction progress from "awareness" to "action", key stakeholders need to take responsibility and agree on actions for executing product reformulation and creating consumer behaviour change programmes **(Zandstra, Lion and Newson, 2016).**

In the previous study it was about salt reduction awareness strategies now in this study author focuses on fat and cholesterol labelling awareness among individuals **(Reid and Hendricks 1994),** In this study it was revealed that consumers believes that low fat is an important health claim label but interpretation of claims such as "low in saturated fat'' etc. are misunderstood by consumers. On products high in sugar, most commonly used health claim symbols used by manufacturers are "good source of calcium", "reduced fat/low fat/trans -fat free'' etc. are used to deceive consumers so that they neglect the fact that the product is high in sugar**(Colby et al. , 2010).**

Another study was done on dietary fiber information and reactions of consumers towards this information and it was revealed that white bread or muffins labelled high in fiber was preferred choice of consumers **(Mialon et al., 2002)**. By all these studies it is clear that whatever the trend is followed by companies, the health claim label has the potential in increasing awareness among individuals.

1.1.1.3 Marketing information (Marketer's role)

Marketing influences food purchasing and consumption behaviour **(Colby et al., 2010).** Consumers' nutritional awareness is highly dependent on marketing techniques related to food products. Most of the food products are marketed claiming several health claims which sometimes increases the nutritional awareness and vice-versa. Nutrition marketing can be defined as any marketing of food or beverages using health or nutrition information beyond minimum requirements and health claim would fall under

nutrition marketing **(Colby et al., 2010).**So it becomes very important for consumer to differentiate between fake and real labels ,for ex. a product claiming **"sugar-free''** does not mean that product is really sugar free ,it may have sugar in several forms such as maltose, fructose etc**.,** therefore it is very important for individuals to have some sort of specific knowledge about ingredients in food.

Nutrition and health claims on FOP are a part of propaganda to mislead individuals about processed food products **(Nestle and Ludwig, 2010).** Many food marketing companies does not follow guidelines of FSSAI and give satisfactory clarification of their health claims hence people with high knowledge of nutritional facts differentiate between real and fake but people with less knowledge are deceived by these companies.

1.1.2 Internal factors influencing nutritional awareness

1.2.2.1 Sociodemographic characteristics

Sociodemographic characteristics include age, gender, income and education level which greatly influences the nutritional awareness of an individual. **Dillen et al. (2007)** in his descriptive study clearly mentioned the role of socio-demographic factors and find correlation of these factors with nutritional awareness. **Singla (2010)** stated the level of food label use on the basis of various socio demographic characteristics i.e. Gender, age and income level. Consumer with high education levels had a better understanding of diet disease related messages and positive attitude towards health messages on food labels **(Fullmer, Geiger and Parent, 1991).**

1.2.2.2 Health-related attributes

Health- related attributes are such as health status, special diet status and consumers motivation towards health i.e. belief in control of health. Health claims promise health benefits beyond basic nutrition but their impact on food selections is determined by consumer's motivation **(Hung et al., 2017)**. Respondents with health motivation viewed the nutrition information on food products for longer and more often than respondents with taste motivation **(Visschers, Hess and Seigrist, 2010).**Health motivation shows significant interaction with process claims on product evaluations **(Chrysochou and Grunet 2014).** In another model based study it was noticed that Consumers with higher nutrition knowledge and/or higher health motivation looked longer at the nutrition and health claims **(Steinhauser, Janssen and Hamm, 2019).**

Nutrition labels are mainly used by consumers who are already engaged in health enhancing activities or have special diet status and have a limited effect on less health concerned consumers who have greater need to pursue healthier lifestyles **(Cavaliere, Marchi and Banterle, 2017**). Having hypertension increased rating related to product healthfulness and purchase intentions **(Wong et al., 2013).** Health status is closely related to nutritional awareness of individuals.

In a descriptive study it was found that consumer groups with low health orientation(specifically smokers, those who do not exercise regularly, and those with unhealthy body weight)show little interest in nutritional labels**(Cavaliere,Marachi and Banterle,2017).**

1.2.2.3 Interest in nutrition

In a study it was stated that most consumers do not read label information **(Madilo et al., 2020).** The level of interest of consumers in using food label was higher when consumer purchases a product they had not used before and lower when consumer purchases a product form known brands **(Besler et al., 2012).** Consumer health awareness should be raised in order to increase the frequency of label use **(Hees, Visschers and Seigrist, 2012).**Frequency of label use, self- reported use of food labels, food label reading patterns and food choices are factors which correlates with nutritional awareness of consumers and food consumption behaviour.

1.3 Consumers attitude towards nutritional and health claim labelling

Consumers were favorable for all FOPLs with no significant differences between the different FOPLs **(Vandevjvere, 2020).**Front of pack nutrition labels are preferred by consumers to better identify healthier and less healthy products **(Al-Jawaldeh, 2020).**Food packaging labels attract consumers attention in stores and market areas, and communicates relevant nutrition information that allows them to distinguish between food product alternatives **(Madilo et al., 2020).**

In an experimental study it was found that addition of a nutrient or health claim did not affect the likelihood of picking healthier food choices but did increase the likelihood of selecting less healthy food **(Tatali et al.,2018).**In another study it was found that perceptions of health benefits seemed largely based on prior beliefs about product rather than on specific information provided by claims**(Williams,2005).**Consumers care the most about the products they purchase is the global quality rather than nutritional values**(Viola et al.,2016).**

1.4 Purchase Intentions

Nutrition and health claims (NHCs) have been found to influence perceptions of food and consumption behaviour **(Benson et al., 2019).**Nutritional health claims increase the health consciousness of individuals and in turn it affects the purchase behaviour of consumers towards food products. These perceptions and the characteristics of products displaying claims also impacted believability, as well as purchasing behaviour and consumption **(Benson et al., 2019)**.

Food labelling provides information on important aspects about food products therefore providing a driving force to purchase the right food product **(Tobi et al., 2020).** In a descriptive study it was mentioned that Psychological factors such as consumer's familiarity with foods carrying claims and belief in claims were most important predictors of perception **(Benson et al., 2018).**

In a descriptive study it was quoted about evaluation of the impact of health claims would ideally consider not only product purchase behaviour, but also changes in nutritional knowledge, awareness of diet-disease relationships, and ultimately impacts on total diet quality and health status **(Williams, 2005**). According to this study purchase intentions or purchase behaviour of consumers is combination of variety of factors which ultimately lead consumers to buy a food product of their choice.

Nutrition information aims to enable informed consumer choices **(Baltas, 2001)**.According to this study nutrition information on packs plays important role for consumers to choose food products efficiently and increase the demand of healthy food products and competition among manufactures about nutritional quality of food products. Nutrition information indicates the nutrition attributes do matter in product choice decisions **(Baltas, 2001).**

2. RESEARCH TYPE

This category belongs to the type of methodological approach used by various authors in their respective study. It will give this research a brief idea about all the methods applied and lead this research in efficient way.

2.1 DESCRIPTIVE RESEARCH

Descriptive research includes surveys and fact finding enquiries of different kind. This type of research help the authors to get a broader idea about the marketing research problem. It is also used to determine the degree to which marketing variables are closely associated or to eliminate the percentage of

population exhibiting certain characteristics **(Malhotra 2011).**The research done by authors **(Hagman and Seigrist ,2020),(Anabtawi et al. ,2020),(Benson and Lavelle, 2019),(Tatali et al. ,2016),Ali and Kapoor ,2009),(Williams , 2005),(Singla ,2010),(Cannoosamy,Jeewon and Gunsam(2014)** etc. lie under this category.

2.2 CONCEPTUAL RESEARCH

It can be defined as research that is related to some abstract idea(s) or theory .It is generally used by philosophers and thinkers to develop new concepts or to re interpret existing ones **(Kothari, 2004).**The research done by authors **(Hieke et al., 2015),(Mande et al.,2015) (Kanter, Vandevjvere and Vanderlee ,2018) etc.** lie under this category.

2.3 ANALYTICAL RESEARCH

In analytical research the researcher uses facts and information already available and critically analyze that study. This method of research helps author to critically evaluate the fact according to his way of thinking**.** The research done by authors **(Al-Jawaldeh et al., 2020), (Edalati et al., 2020), (Pulker, Pollard and Scott, 2018) etc.** lie under this category.

2.4 EMPIRICAL RESEARCH

Empirical research is a type of research using information gained with the help of experience or observation. It is a data-based research in which some conclusions are drawn which can be verified with the help of experiments. It is also called experimental research. The research done by authors **(Vandevijivere et al., 2020), (Cavaliere et al., 2016) etc**. lie under this category.

2.5 CASE STUDY

It is a type of descriptive study in which an individual, group or any type of event is thoroughly studied. Case study research is good for contemporary events when the relative behaviour cannot be manipulated and it uses variety of evidences from different sources, such as document, artefacts, interviews and observation **(Rowley ,2002).**The research done by authors**(Madilo et al. ,2020),(Oliviera et al. , 2016)** lie under this category.

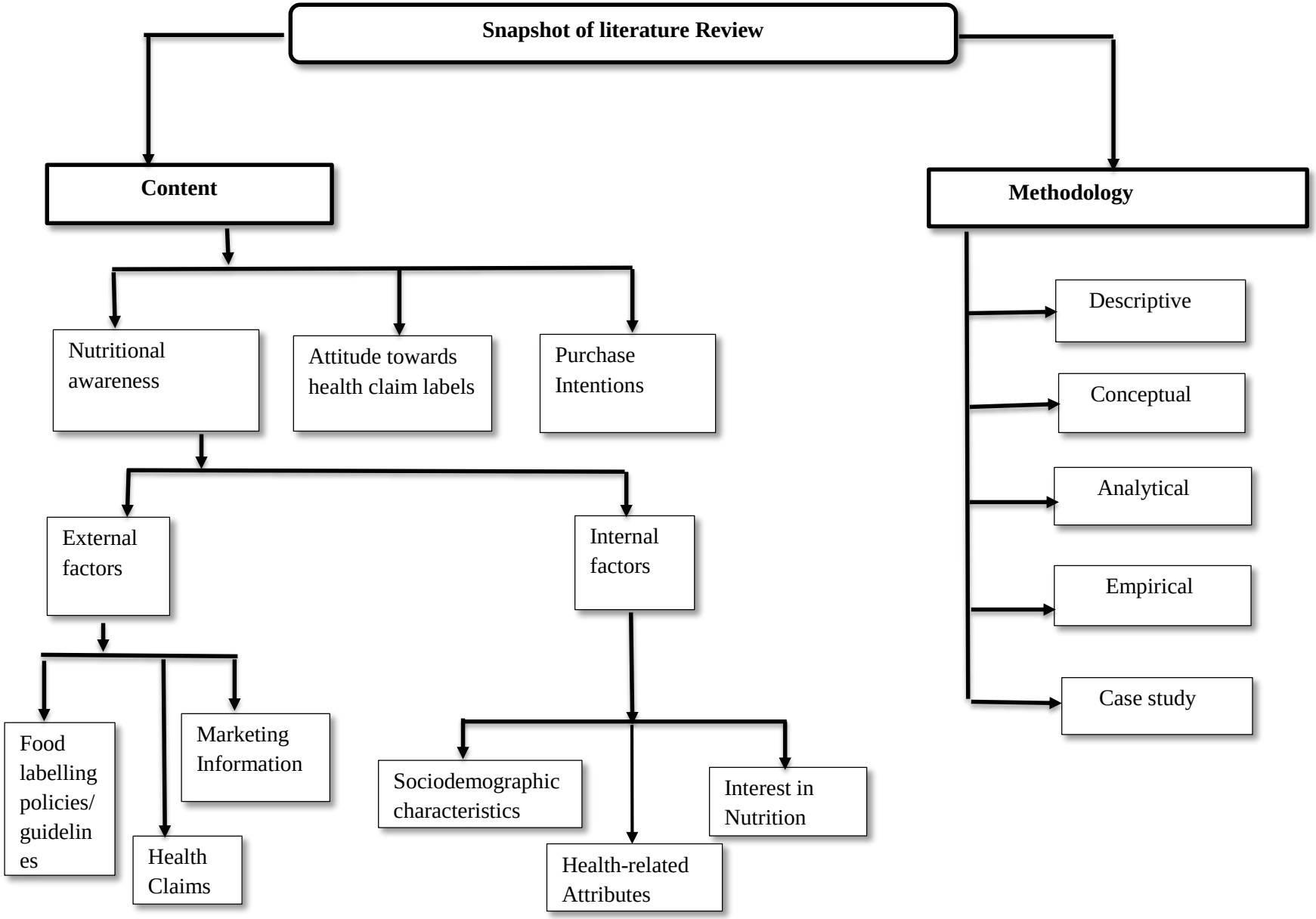

Fig 1: Snapshot of literature review

Table 1: Tabular Summary of Literature of Review

S.No	Paper Author	Contents								Research type				
		Nutritional Awareness						Consumers' Attitude towards nutritional health claims on food labels	Purchase intention					
		External factors			Internal factors									
		Food labelling guidelines	Health claims	Marketing Information	Sociodemo-graphic Characteris-tics	Health-related attributes	Interest in nutrition			Descriptive	Conceptual	Analytical	Empirical	Case study
1.	Hagmann and Siegrist (2020)	✓	✓		✓		✓	✓	✓	✓			✓	
2.	Brown et al. (2020)	✓	✓	✓	✓			✓	✓		✓			
3.	Anabtawi et al. (2020)	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	
4.	Vandervijere et al. (2020)	✓	✓		✓			✓	✓	✓			✓	
5.	Al-Jawaldeh et al. (2020)	✓	✓	✓	✓			✓	✓			✓		
6.	Edaltati et al.(2020)	✓	✓					✓	✓	✓		✓		
7.	Jasua Reed (2020)	✓	✓	✓	✓		✓	✓	✓	✓				
8.	Malido et al.(2020)	✓		✓	✓	✓		✓	✓					✓
9.	Yang chan et al. (2019)	✓	✓		✓			✓						✓
10.	Cole et al.(2019)	✓			✓							✓		
11.	Mitra,Hastak,Ringold and levy (2019)	✓	✓		✓	✓		✓		✓				
12.	Benson et al. (2019)	✓			✓			✓	✓		✓			
13.	Hung and Verbeke (2019)	✓	✓	✓	✓	✓		✓	✓	✓				
14.	Angellino et al. (2019)		✓	✓	✓			✓				✓		
15.	Scarborough et al.(2015)	✓	✓		✓			✓	✓			✓	✓	
16.	Kanter,Vande-vijvere and Vanderlee(2018)	✓	✓	✓	✓			✓	✓		✓			
17.	Pulker,Pollard and Scott (2018)		✓	✓		✓	✓	✓	✓			✓		
18.	Benson et al.(2018)		✓	✓	✓			✓	✓	✓				
19.	Dillen et al., 2007	✓	✓	✓	✓	✓	✓	✓		✓		✓		
20.	Lawrence,Dikle and Wood (2018)	✓		✓				✓	✓			✓		

21.	Acton and Hammond (2018)		✓		✓	✓	✓	✓	✓	✓			✓	
22.	Goyal and Deshmukh (2018)		✓	✓	✓			✓		✓				
23.	Steinhauser, Janssen, Hamm (2019)	✓	✓		✓	✓	✓		✓	✓				
24.	Tatali et al. (2018)	✓	✓		✓			✓		✓			✓	
25.	Jain,Gomathi and Shekhar (2018)	✓	✓		✓	✓		✓	✓	✓				
26.	Hung et al.(2017)			✓	✓	✓	✓		✓	✓				
27.	Cavaliere,Banterle,Marachi (2017)			✓	✓	✓	✓	✓		✓				
28.	Tatali et al. (2017)	✓	✓		✓	✓		✓	✓			✓		
29.	Hwang,Lee and Lin (2016)		✓		✓	✓		✓		✓				
30.	Cavaliere et al. (2016)		✓		✓	✓	✓	✓					✓	
31.	Latiff et al.(2016)	✓	✓	✓	✓			✓		✓				
32.	Perschel et al. (2016)		✓	✓	✓	✓		✓	✓	✓			✓	
33.	Tatali et al.(2016)	✓	✓					✓	✓	✓				
34.	Viola et al.(2016)	✓	✓		✓			✓	✓	✓				
35.	Fenko et al.(2016)	✓	✓		✓		✓	✓	✓	✓				
36.	Oliveira et al.(2016)	✓	✓		✓				✓	✓				✓
37.	Orquin Scholderer(2015)	✓		✓	✓			✓	✓				✓	
38.	Miklavec et al.(2015)	✓	✓		✓	✓	✓	✓	✓	✓				
39.	Hieke et al. (2015)		✓		✓			✓	✓		✓			
40.	Mande et al.(2015)	✓				✓	✓	✓	✓		✓			✓
41.	Mclean and Hoek (2014)	✓	✓		✓			✓	✓	✓				
42.	Chrysochou and Grunet(2014)	✓	✓	✓		✓	✓	✓	✓	✓			✓	
43.	Oke et al.(2016)		✓		✓		✓	✓	✓	✓				
44.	Wong et al. (2013)	✓			✓	✓		✓		✓				
45.	Gadioli et al. (2013)	✓	✓	✓	✓	✓	✓	✓	✓	✓				
46.	Besler et al.(2012)	✓	✓		✓		✓		✓	✓				
47.	Ares et al. (2012)	✓			✓			✓		✓			✓	
48.	M Vasan (2015)	✓	✓		✓			✓	✓	✓				✓
49.	Manish Singla (2010)	✓	✓	✓	✓			✓	✓	✓				
50.	Colby,Johnson (2010)		✓	✓	✓	✓	✓	✓						

51.	Nestle,Edwig (2010)	✓	✓	✓	✓	✓	✓	✓	✓		✓			
52.	Ali and Kapoor (2009)				✓			✓	✓	✓				
53.	Zandstra, Lion and Newson (2016)		✓			✓		✓	✓			✓		
54.	Williams et al. (2008)	✓	✓		✓			✓		✓			✓	
55.	Grunet and M. Wills (2007)	✓	✓	✓	✓			✓	✓		✓			✓
56.	Cowburn and Stockley (2005)	✓	✓		✓			✓				✓		
57.	Williams (2005)		✓	✓	✓			✓	✓	✓				
58.	Legault et al. (2004)	✓		✓	✓		✓	✓	✓			✓		
59.	McCluskey and Loureiro (2003)	✓	✓	✓				✓	✓				✓	
60.	Baltas (2001)	✓			✓	✓		✓				✓		
61.	Visschers,Hess and Seigrist (2012)	✓	✓		✓	✓	✓	✓		✓				
62.	Visschers,Hess and Seigrist(2010)	✓	✓		✓	✓	✓	✓	✓	✓				
63.	Mialon et al. (2002)	✓	✓	✓	✓		✓	✓	✓	✓			✓	
64.	Mason and Scammon (2000)	✓	✓	✓	✓			✓			✓			
65.	Chandon (2012)	✓	✓	✓	✓	✓		✓	✓	✓				
66.	Mai and Hoffman (2012)	✓			✓	✓	✓	✓	✓	✓				
67.	Singer et al.(2006)	✓	✓		✓	✓	✓		✓	✓				
68.	Mazis and Raymond (1997)			✓	✓			✓	✓				✓	
69.	Teisl,Derby,and levy (1996)	✓		✓		✓		✓	✓	✓				
70.	Keller et al.(1997)	✓	✓		✓			✓					✓	
71.	Reid and Hendricks(1994)	✓	✓		✓	✓		✓	✓	✓			✓	
72.	Fullmer.Geiger and Parent (1991)	✓		✓	✓		✓	✓	✓	✓				

SECTION: 3

3.1 Need of the study

Lifestyle diseases such as high blood pressure (due to intake of more salt, unhealthy fats etc.), high cholesterol, type 2 diabetes, obesity etc. are majorly related to the food. It means that our poor lifestyle and wrong choice of foods are causing these main diseases which are precursor to some of the major disease such as heart attack, kidney failure etc. which could be fatal. Despite the rise of these non-communicable diseases caused due to lack of awareness regarding nutritional knowledge, there are few research works that are in context of nutritional and health claim labelling impacts on Indians. This is the reason why this research becomes very important to find out the perceived behaviour of individuals towards the nutritional and health claim labelling and level of nutritional awareness on consumers' attitude and purchase intentions.

India is among the top five markets for packaged food in the world, food and beverage industry in India ranks fifth largest sector in manufacturing and total consumption of food and beverage industry in India is expected to increase from US$ 369 billion to US$1.42 trillion by 2025. India is in the race to become third largest country in the world for packaged food market, with this growing market scenario, the industry is still facing challenges such as lack of regulatory clarity in packaging, insufficient consumer awareness of sustainable packaging etc. and in today's scenario packaging not only wrap the product, but also plays important role in product differentiation and gives clarity to consumers what they are consuming.

As we are still fighting with the pandemic COVID-19 and already fought with SARS-CoV-2, health sector faced many tolls hence it is necessary to take care of our health and healthy eating could be one of the most important factor regarding this issue. Consumer awareness about nutritional labels is the precursor of healthy eating. If an individual is aware of macronutrients and micronutrients, and all health related nutritional knowledge on food labels, it would be easier to maintain a healthy lifestyle.

FMCG sector in India is the fourth largest sector in the Indian Economy, food and beverage sectors accounts for 18-19%, and FMCG product touches every aspect of human life, the first thing that consumer notices is the packaging on the food product and awareness level decides the way consumer judge the healthiness of the food product before purchasing a food product.

Consumer awareness on health claims helps them to choose right food product and as we are in the midst of a disease which is a communicable disease and spreading like air all over the world. Those who have maintained their health and not having any type of non-communicable disease as discussed above are less prone to getting infected and eating right is very important for maintaining health. Therefore it is an important study for finding awareness regarding health claim food labels after post pandemic scenario.

Consumer awareness will give a brief idea to all manufactures to correctly label the food product so it becomes easier for an individual to include healthy alternative in their diets. This study will help labelling agencies in India to know about consumer's preferred choices of food labels and to mend the lacks in current health claim food labels.

This study will help to find the dimensions that controls consumer's attitude towards nutritional labelling and factors that enhance or supports purchasing behaviour of consumers.

3.2 Research Objectives

Objective 1: To analyse the influence of external factors on nutritional awareness of consumers.

The purpose here is to identify the importance of external factors on nutritional awareness of consumers, and to what extent these factors such as food labelling guidelines, health claims and marketing information helps consumer to enhance their understanding and knowledge on nutritional facts/claims on food labels.

Objective 2: To analyse the influence of internal factors on nutritional awareness of consumers.

The endeavor here is to identify the importance of internal factors on nutritional awareness of consumers, and to what extent these factors such as Socio-demographic factors, Health-related attributes and interest in nutrition helps consumer to enhance their understanding and knowledge on nutritional facts/claims on food labels.

Objective 3: To analyse consumers' attitude and purchase intentions on the basis of nutritional awareness on health claim food labels.

The need here is to find the role of nutritional awareness on consumers' attitude and purchase intention while selecting food product, and to evaluate the prominent factors of nutritional awareness that ultimately leads to consumer purchasing behaviour.

Objective 4: To make recommendations for marketers, manufacturers and policy makers dealing with nutritional and health claim labelling on food products.

The need here is to find out some recommendations/suggestions for marketers, manufactures and food labelling policy makers to enhance the marketing techniques as well as various food labelling guidelines that influence the nutritional awareness amoung individuals.

SECTION IV: Overview of Proposed Research

4.1 Conceptual framework and Hypothesis development

The hypothesis is based on the conceptual model depicted below. The following framework represents various factors that are related to consumer awareness on nutritional facts and health claims on food labels. It will also elaborate consumers' attitude and purchase intentions based on nutritional awareness of individuals.

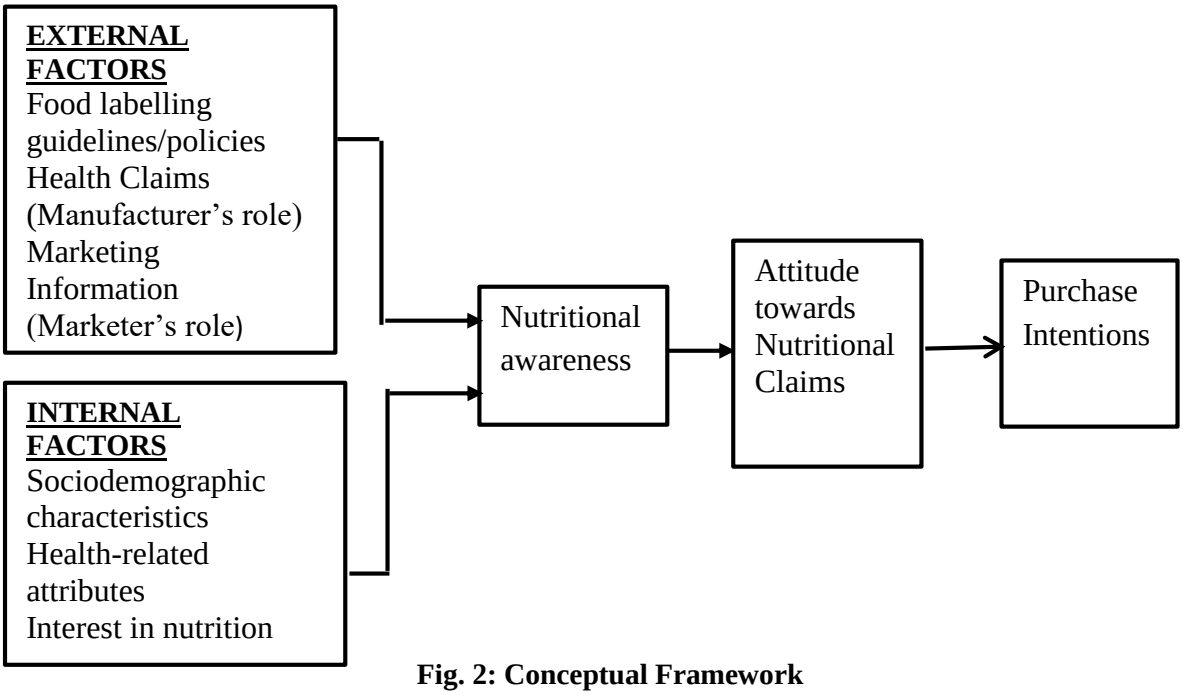

Fig. 2: Conceptual Framework

4.2 Hypotheses

4.2.1 Nutritional awareness

In most of the studies it is seen that consumers had mixed results on health claim labels. Some of them find claims useful in increasing their common understanding on labels and vice-versa. Consumers are becoming more aware of crucial relation between diet, health and disease **(Singla ,2010).**More efforts

should be done to improve consumers knowledge on nutrition fundamentals and basics about food labelling ,because that would make them choose safer and more conscious choices**(Viola et al. ,2016)**. Nutrient claims and functional claims are commonly find throughout the world but their enhancement and efficacy varies widely **(Williams, 2005).**

It is seen very frequently that trust towards brands has very significant role in choosing food product and consumers are aware only about the health claims of the brand they prefer. **(Oke et al.,2016)** in his study clearly mentioned that brand image of company supplying food product shows a significant relationship in choosing food items**. (Vasan, 2015)** mentioned that Quaker oats are the first priority of individuals and they trust the health claims of this brand. **(Anabtawi et al., 2020 and Scarborough, 2015)** stated that some consumer prefers sugar labelling and some consumers prefer total fat respectively.

Nutrient claims have the potential to mislead when they promote the presence of beneficial nutrient but fail to point out the presence of less-beneficial or potentially harmful nutrients within the same product **(Tatali et al., 2020).** So it becomes very important for individual to clearly analyze all the necessary nutrients apart from clearly misleading health claims on packages. Claims such as "This oil has no saturated fats'' does not mean the oil is free from saturated fats because every fat has some amount of saturated fats in them. Nutritional awareness plays important part in choosing the right food product and leading healthy lifestyle.

4.2.2 External factors influencing nutritional awareness

4.2.2.1 Food labelling guidelines/Policies

Health claim labels are an important part for framing food labelling guidelines, promoting public health by creating awareness through labels on food products and a tool for the food industry to better differentiate their food products in market **(Hung et al., 2017).** Policy makers should consider different ways to convey nutritional information to consumers (**Cavaliere, Mariachi and Banterlee, 2017**). Food labelling guidelines or regulations plays significant role in labelling any type of processed food product so that consumer can understand the overall composition i.e. ingredients, Veg non-veg logos, fortified foods labels etc. In order to induce the whole population to use food label as an effective self-protection tool, more efforts should be done to improve their knowledge on nutrition fundamentals to help them to

take safer and more conscious choices as regard of their own health**(Viola et al.,2016).** Thus null and alternate hypotheses are stated below:

Ho1 (a): Food labelling guidelines have no positive association with the nutritional awareness of individuals.

Ha1 (a): Food labelling guidelines have positive association with the nutritional awareness of individuals.

4.2.2.2 Health claims (Manufacturer's role)

Manufacturers are recently emphasizing on various trends which may increase awareness of consumers on food labels. Such as nutrient specific labels (i.e. contains essential vitamins (vitamin D for bones etc.), contains essential lipids (fats +oils) etc.) or Sugar, salt and trans-fat specific labels (i.e. low in sugar, contains natural sugar, low iodized salt etc.) or Dietary specific labels (i.e., "gluten-free, Lactose free etc.). Different types of labels significantly influenced consumers perception **(Hong, Lee and Lin, 2016).** Sugary drinks labeled with high sugar gives motivation to consumers to buy drinks with less sugar (**Acton and Hammond, 2018).** This hypotheses will test the fact that these trends increase the awareness or not. Thus null and alternate hypotheses are stated below:

Ho1 (b): Health claims have no positive association with the nutritional awareness of individuals.

Ha1 (b): Health claims have positive association with the nutritional awareness of individuals.

4.2.2.3 Marketing Information (Marketer's role)

Information put up on the television programs and internets about food products must be accurate, credible and sufficient enough to enable consumer's right and informed choice of food products they would wish to purchase **(Madilo et al., 2019).** This hypotheses will test the role various marketing trends on nutritional awareness and food consumption behaviour. Thus null and alternate hypotheses are stated below:

Ho1 (c): Marketing information has no positive association with the nutritional awareness of individuals.

Ha1 (c): Marketing information has positive association with the nutritional awareness of individuals.

4.2.3 Internal factors influencing nutritional awareness

4.2.3.1 Sociodemographic characteristics

Socio-demographic characteristics are such as gender, age, education level and income. **Vandevijvere et al., 2020; Dillen et al., 2007; Singla 2010** categorize consumers food choices and awareness on food claims on the basis of socio-demographic characteristics in their respective studies. Thus null and alternate hypotheses are stated below:

Ho2 (a): Sociodemographic characteristics have no positive association with the nutritional awareness of individuals.

Ha2 (a): Sociodemographic characteristics have positive association with the nutritional awareness of individuals.

4.2.3.2 Health-related attributes

Health-related attributes are basically the factors that deal with healthy lifestyle of individuals and such factors are health status, special diet status and health motivation (i.e. belief in control of health). Motivation has been defined as the desire or readiness of consumers to process health related information **(Morman, 1990).** Health conscious consumers or consumers following any type of special diet are the individuals who take care of their health and labels play a significant role in maintaining this attitude. Highly health oriented consumers are more likely to refer to the extensive information whereas claims with not much clarification are of main interest for consumers with low orientation to health **(Cavaliere, Marchi and Banterle, 2016 and 2017).** Health claims promise health benefits but their impact on food choices is determined by consumers motivation and ability to process these claims **(Hung et al., 2017).** Taste motivated consumers are individuals who rarely see label and are least motivated to live a better and healthy lifestyle. But sometimes consumers with low motivation towards health finds health claims beneficial for them **(Cavaliere, Marachi and Banterle, 2016).** Thus null and alternate hypotheses are stated below:

Ho2 (b): Health-related attributes have no positive association with the nutritional awareness of individuals.

Ha2 (b): Health-related attributes have positive association with the nutritional awareness of individuals.

4.2.3.3 Interest in nutrition

(Madilo et al., 2019 & Besler et al., 2012) clearly stated in their respective studies about the importance of label use. Frequency of label use, self-reported use of labels, food label reading patterns and food choices are important factors that are related to awareness of consumers on nutritional facts and health claim labels and food purchasing behaviour. Thus null and alternate hypotheses is stated below:

Ho2 (c): Interest in nutrition has no positive association with the nutritional awareness of individuals.

Ha2 (c): Interest in nutrition has positive association with the nutritional awareness of individuals.

4.2.4 Consumer's attitude towards nutritional and health claim labelling

Purchase behaviour of consumers does not depend on labelling alone but also their attitude towards labelling i.e. confidence in the constituent element of label itself **(Lattif et al., 2015).** Consumers attitude play a keen role while making the choice for including certain food product in their daily diet and whether they find the nutritional claim labels helpful to enhance their nutritional knowledge. Thus null and alternative hypotheses are stated below:

Ha3: Nutritional awareness has no positive association with consumers' attitude towards nutritional claims.

Ho3: Nutritional awareness has positive association with consumers' attitude towards nutritional claims.

4.2.5 Purchase intentions

Consumers do not necessarily take the healthiest choice but decision making process is also influenced by the ability to decode the label and its graphical representation, by socio-economic status and self-perception of psychophysical wellbeing **(Viola et al., 2016).** One of the factors of consumer behavior regarding the purchase of food product depends on how consumers perceive the effectiveness of food labels which guides them to choose right food product .Thus null and alternative hypotheses are stated below:

Ho4: Consumers' attitude towards nutritional claims have no positive association with purchase intentions related to food products.

Ha4: Consumers' attitude towards nutritional claims have positive association with purchase intentions related to food products.

SECTION V: METHODOLOGY OF PROPOSED RESEARCH

5.1 Scope of Study

Area of survey: Agra

Population: Total population of Agra city i.e. 2024195

Target population: Population of Agra below 60 years i.e. 1867725

Table 2: Population and Target Population of UP Urban and Agra Urban as per Censes 2011

Category	Age group	Up urban population	Percentage (%) Of total population	Up urban target population	Percentage of target population	*Agra Urban Population(in proportion to Up's Urban Population	Agra Urban Population (in proportion to Target Population)
	All ages	44495063	100	41051995	100	2024195	1867725
Children and adolescent	19&below	18876943	42.42	18876943	45.98	858866	45.98
Young adults	20 to 30	11452987	25.74	11452987	27.9	521028	27.9
Mature Adults	35 to 59	10722065	24.1	10722065	26.9	487831	26.12
Old	60 & above	2993436	6.72	NA	NA	136026	NA
Mixed age Group	Age not stated	449632	1.01	NA	NA	20444	NA

**Age wise population of Agra is calculated in ratio of age wise population of U.P. as per Census 2011*

5.2 Sampling Technique

Techniques that will be used for sampling shall be Stratified Sampling.

5.3 Sampling Plan

Sample size calculation

(I)For consumers: Taking Statistical approach to calculate sample size (n) of the infinite population

the steps followed

(a) Degree of variability of population characteristics or standard deviation (σ).

(b) Level of confidence desired or Z value

(c) Degree of precision desired in estimating population characteristics (D)

$$\mathbf{n^2 = \sigma\ ^2Z^2/D^2}$$

σ = Approximate value of standard of deviation of sample is taken as 1

Z = Standard normal variation or Z value is taken as 1.96 for 95% confidence level desired

D is taken as .895 (less than 1) to ensure high degree of precision

$n = 1^2 (1.96)^2 (.895)^2 = 479.5 = 480$

(II) For FSSAI Employees/Executives: Structured personal interview of some employees would be conducted to get insights on procedure related to labelling of food products and new guidelines that are to be implemented in future years to make food products labelling more effective for consumers consumption.

(III) For manufacturers/Labelers: Structured personal interview of some manufacturers would be conducted to get insights about the health claim labels or nutritional labels they choose to label the food product.

(IV) For marketers: Structured personal interview of some marketers would be conducted to get insights about the marketing strategies that are related to consumer awareness on health claim labels on food products.

Table 3: Age wise and gender wise calculation

Total Sample : Age and Gender wise (Calculation as per Census 2011)				
Age category	Percentage of target population	Total Sample	Male (53.34 %)	Female (46.66%)
Children &Adolescents (Below 19 years)	45.98	221	118	103
Young Adults(20-30 years)	27.9	134	71	63
Mature Adults(35 -59 years)	26.12	125	67	58
Total	100	480	256	224

5.4 Data Collection Instruments

5.4.1 Primary Data Tools

The tools used for the purpose of primary data collection would be questionnaires and personal interviews from respondents.

Questionnaires will be used for the survey of consumers.

Structured Personal Interview will be conducted for FSSAI employees, marketers and manufactures to understand consumer perspective toward nutritional labelling.

5.4.2 Secondary Data

Data will be collected through various magazines, journals, publications of marketing research agencies, newspaper etc.

5.5 Statistical Techniques for Data Analysis

Relevant Analytical tools like descriptive statistics, z-test, ANOVA and Regression would be used.

SECTION VI: CHAPTERIZATION

The proposed study will contain the following chapters:

Chapter 1: Introduction

Chapter 2: Review of Literature

Chapter 3: Conceptual Framework

Chapter 4: Research Design and Methodology

Chapter 5: Data Collection and Analysis

Chapter 6: Results and Interpretation

Chapter 7: Conclusions and Directions for Future Research

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